

May 19, 2004

Mr. Richard S. Johnson, L.G.
GeoEnvironmental Unit
N.C. Department of Transportation
Century Center
1020 Birch Ridge Drive
Raleigh, NC 27610

**Reference: Preliminary Site Assessment, Potential PCB Spill
Parcel 132, Prior Pate Property, and
Parcel 133, March Riddle Property
SR 1400 (Cliffdale Road) from US401 to west of SR1403 (Reilly Road)
Fayetteville, Cumberland County
State Project 8.2441701 (U-2520)
WBS# 34818.1.1
Solutions-IES Project No. 4040.04A2.NDOT**

Dear Mr. Johnson:

Solutions Industrial & Environmental Services, Inc. (Solutions-IES) completed a limited preliminary site assessment (PSA) of the north shoulder of Cliffdale Road in front of Parcels 132 and 133 (referenced above). The work was performed in general accordance with our proposal number NC04229P dated March 17, 2004 as authorized under the "Notice to Proceed" dated March 30, 2004.

BACKGROUND

Mr. Michael Pate, who formerly resided at 8270 Cliffdale Road, contacted the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management (DWM) on January 6, 2004 to report that hazardous substances may have been deposited along Cliffdale Road in front of his residence at some time in the 1960s. Mr. Pate reportedly observed a tanker truck depositing an oily liquid along the north shoulder of Cliffdale Road approximately 10 miles west of Fayetteville. The NCDENR DWM has documented illegal disposal of hazardous substances (including polychlorinated biphenyls, PCBs) along other roads in NC. Cliffdale Road is being widened in this area and if hazardous substances were disposed along the shoulder of the highway, there is a potential exposure hazard to workers during excavation and construction activities. Because of the elapsed time since the alleged disposal and the anecdotal nature of the report, the NC Superfund Section of NCDENR did not intend to investigate the

matter further and referred the information to Mr. Greg Smith with NCDOT in a letter dated January 8, 2004 so that appropriate precautions might be observed.

FIELD ACTIVITIES

A representative of Solutions-IES traveled to the site on April 16, 2004 to perform the assessment. All of the field activities were completed on that date. The road frontage for parcel 132 (the prior Pate property) and parcel 133 (the Riddle property) was measured and 12 borings were equally spaced in front of the two parcels. Figure 1 shows the approximate boring locations.

A hand auger was used to open a boring at each location to a maximum depth of approximately 0.9 meters (3 feet). Most locations encountered 0.3 meter (1.0 feet) of red sandy (fill) that had been recently placed on top of the original shoulder in preparation for road widening. Dark gray brown sandy silt (topsoil) containing roots and organic matter was encountered in all of the borings beneath the fill. All of the borings were terminated in the underlying (subsoil) red sandy clay.

Soil samples were collected at 0.15-meter (6-inch) increments. The samples were screened in the field for volatile organic compounds (VOCs) using an organic vapor analyzer (OVA). One sample aliquot was selected from each boring and analyzed for polychlorinated biphenyls (PCBs) using the Chlor-n-Soil[®] field test kit manufactured by Dexsil Corporation located in Hamden, Connecticut. The Chlor-n-Soil[®] test kit uses a reaction to convert the chlorine in PCBs to chloride, with an end-point titration to measure chloride in soil. The detection limit is 50 ppm PCBs.

In addition, three split samples of the soil screened in the field from borings B-2, B-5, and B-12 were also collected. These samples were shipped to Pace Analytical Laboratories in Charlotte, N.C. under chain-of-custody procedures for analysis of PCBs by EPA Method 8082 to confirm the field results.

RESULTS

Table 1 summarizes the field and laboratory data. Soil type, as noted in the table, was broadly classified in the field either as fill (F) consisting of red orange fine sand containing varying amounts of clay and silt; (T) topsoil, present as brown to gray sandy silt containing roots and organic matter; or (R) red sandy clay which was present beneath the topsoil. Field OVA headspace readings were 10 ppm or less which is

generally considered to be background levels. Samples marked with an asterisk (*) in Table 1 were screened in the field with the Chlor-n-Soil® field test kit. All field tests indicated no PCBs were present above the 50 ppm detection limit for the test. The three samples (indicated by #) that were submitted to the laboratory indicated all seven of the Method 8082 PCB congeners to be below reporting limits that ranged from 37 to 42 µg/kg.

CONCLUSIONS AND RECOMMENDATIONS

Solutions-IES found no evidence of PCBs in twelve borings located along the north shoulder of Cliffdale Road in front of Parcels 132 and 133. Based on a lack of evidence of PCBs, no additional assessment activities are recommended at this time. However, if discolored or impacted soils are discovered elsewhere during construction, Solutions-IES requests that we be notified so that we can evaluate site conditions as they relate to the discovery, have the opportunity to collect additional soil samples for analysis, and revise the findings stated in this report.

CLOSING

If you have any questions regarding the activities performed at the site or the report, please call us at (919) 873-1060. We appreciate the opportunity to be of service to the NCDOT.

Very truly yours,
Solutions Industrial & Environmental Services, Inc.



Walter J. Beckwith, P.G.
Senior Hydrogeologist



Gary M. Birk, P.E.
Senior Engineer

Enclosures: Table 1
Figure 1
Laboratory reports

Table 1 – Field Screening and Laboratory Analyses for PCBs in Soil
Preliminary Site Assessment for Parcels 132 and 133
Cliffdale Road NCDOT Project 8.2441701 (U2520) WBS 34818.1.1

Boring Number	Soil Type	Depth in Meters BGS	OVA Screening Results (ppm)	Chlor-n-Soil® Test Results	Laboratory Results
B-1	F	0.0 – 0.15	N/S		
	F	0.15 – 0.3	0.0		
	T	0.3 – 0.45	0.0	* < 50 ppm	
	R	0.45 – 0.6	4.0		
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-2	F	0.0 – 0.15	0.0		
	F	0.15 – 0.3	0.0		
	T	0.3 – 0.45	1.0	* <50ppm	# < 37 µg/kg
	R	0.45 – 0.6	0.0		
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-3	F	0.0 – 0.15	0.0		
	F	0.15 – 0.3	1.0		
	T	0.3 – 0.45	0.0		
	R	0.45 – 0.6	0.0	* < 50 ppm	
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-4	F	0.0 – 0.15	0.0		
	F	0.15 – 0.3	0.0		
	T	0.3 – 0.45	0.0		
	R	0.45 – 0.6	2.0	* <50 ppm	
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-5	F	0.0 – 0.15	8.0		
	T	0.15 – 0.3	0.0		
	R	0.3 – 0.45	0.0	* < 50 ppm	# < 42 µg/kg
	R	0.45 – 0.6	0.0		
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-6	F	0.0 – 0.15	0.0		
	T	0.15 – 0.3	0.0		
	T	0.3 – 0.45	0.0	* < 50 ppm	
	R	0.45 – 0.6	0.0		
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		

Notes:

F- fill soils, red orange sandy silt

T – topsoil, gray brown sandy silt with roots and organic matter

R – red silty clay

* - sample screened in the field for PCBs

- sample submitted for laboratory confirmation of field test

Table 1 (Continued) – Field Screening and Laboratory Analyses for PCBs in Soil
Preliminary Site Assessment for Parcels 132 and 133
Cliffdale Road NCDOT Project 8.2441701 (U2520) WBS 34818.1.1

Boring Number	Soil Type	Depth in Meters BGS	OVA Screening Results (ppm)	Chlor-n-Soil® Test Results	Laboratory Results
B-7	F	0.0 – 0.15	0.0		
	T	0.15 – 0.3	0.0		
	T	0.3 – 0.45	0.0		
	T	0.45 – 0.6	0.0	* < 50 ppm	
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-8	F	0.0 – 0.15	0.0		
	F	0.15 – 0.3	6.0		
	T	0.3 – 0.45	0.0		
	T	0.45 – 0.6	0.0	* < 50 ppm	
	R	0.6 – 0.75	1.0		
	R	0.75 – 0.9	0.0		
B-9	F	0.0 – 0.15	0.0		
	F	0.15 – 0.3	1.1		
	T	0.3 – 0.45	0.2	* < 50 ppm	
	T	0.45 – 0.6	0.1		
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-10	F	0.0 – 0.15	0.0		
	T	0.15 – 0.3	0.0		
	T	0.3 – 0.45	0.1	* < 50 ppm	
	R	0.45 – 0.6	1.8		
	R	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0		
B-11	F	0.0 – 0.15	0.0		
	F	0.15 – 0.3	0.8		
	F	0.3 – 0.45	1.5		
	F	0.45 – 0.6	0.0		
	T	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.2	* < 50 ppm	
B-12	F	0.0 – 0.15	0.0		
	T	0.15 – 0.3	0.0		
	T	0.3 – 0.45	0.0		
	T	0.45 – 0.6	0.0		
	T	0.6 – 0.75	0.0		
	R	0.75 – 0.9	0.0	* < 50 ppm	# <38 µg/kg

Notes:

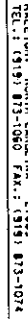
F- fill soils, red orange sandy silt

T - topsoil, gray brown sandy silt with roots and organic matter

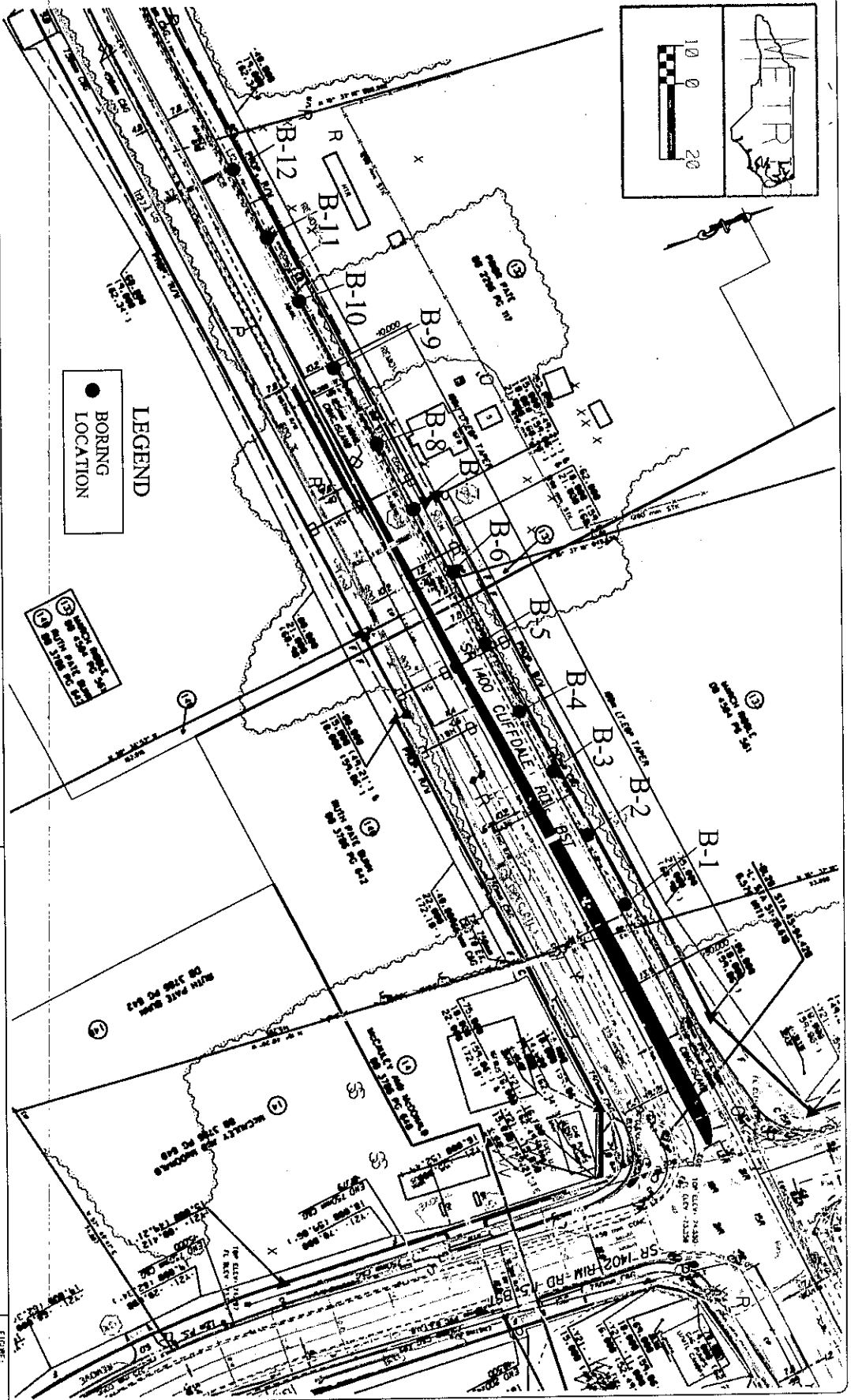
R - red silty clay

* - sample screened in the field for PCBs

- sample submitted for laboratory confirmation of field test



1. ☐ **Yes**
 2. ☐ **No**
 3. ☐ **Not sure**
 4. ☐ **Other**
 5. ☐ **Don't know**
 6. ☐ **Refuse to answer**
 7. ☐ **Other**
 8. ☐ **Don't know**
 9. ☐ **Refuse to answer**
 10. ☐ **Other**
 11. ☐ **Don't know**
 12. ☐ **Refuse to answer**
 13. ☐ **Other**
 14. ☐ **Don't know**
 15. ☐ **Refuse to answer**
 16. ☐ **Other**
 17. ☐ **Don't know**
 18. ☐ **Refuse to answer**
 19. ☐ **Other**
 20. ☐ **Don't know**
 21. ☐ **Refuse to answer**
 22. ☐ **Other**
 23. ☐ **Don't know**
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 33. ☐ **Refuse to answer**
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 167. ☐ **Don't know**
 168. ☐ **Refuse to answer**
 169. ☐ **Other**
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 171. ☐ **Refuse to answer**
 172. ☐ **Other**
 173. ☐ **Don't know**
 174. ☐ **Refuse to answer**
 175. ☐ **Other**
 176. ☐ **Don't know**
 177. ☐ **Refuse to answer**
 178. ☐ **Other</**





Pace Analytical Services, Inc.
9800 Kinsey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

April 30, 2004

Mr. Walt Beckwith
Solutions-IES
3722 Benson Drive
Raleigh, NC 27609

RE: Lab Project Number: 9265066
Client Project ID: NCDOT 8.2441701 Fayetteville

Dear Mr. Beckwith:

Enclosed are the analytical results for sample(s) received by the laboratory on April 17, 2004. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report please feel free to contact me.

Sincerely,

Bonnie Kamla
Bonnie.Kamla@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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Asheville Certification IDs

NC Wastewater	40
NC Drinking Water	37712
SC Environmental	99030
FL NELAP	E87648

Charlotte Certification IDs

NC Wastewater	12
NC Drinking Water	37706
SC	99006
FL NELAP	E87627

Lab Project Number: 9265066

Client Project ID: NCDOT 8.2441701 Fayetteville

Solid results are reported on a dry weight basis

Lab Sample No: 924126063	Project Sample Number: 9265066-001	Date Collected: 04/16/04 11:52
Client Sample ID: B-2	Matrix: Soil	Date Received: 04/17/04 08:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	10.3	%		04/21/04 17:17	TSE			

GC Semivolatiles

Organochlorine PCBs

Prep/Method: EPA 3545 / EPA 8082

PCB-1016 (Aroclor 1016)	ND	ug/kg	37.	04/29/04 06:04	RPJ	12674-11-2
PCB-1221 (Aroclor 1221)	ND	ug/kg	37.	04/29/04 06:04	RPJ	11104-28-2
PCB-1232 (Aroclor 1232)	ND	ug/kg	37.	04/29/04 06:04	RPJ	11141-16-5
PCB-1242 (Aroclor 1242)	ND	ug/kg	37.	04/29/04 06:04	RPJ	53469-21-9
PCB-1248 (Aroclor 1248)	ND	ug/kg	37.	04/29/04 06:04	RPJ	12672-29-6
PCB-1254 (Aroclor 1254)	ND	ug/kg	37.	04/29/04 06:04	RPJ	11097-69-1
PCB-1260 (Aroclor 1260)	ND	ug/kg	37.	04/29/04 06:04	RPJ	11096-82-5
Decachlorobiphenyl (S)	135	%		04/29/04 06:04	RPJ	2051-24-3
Date Extracted	04/27/04			04/27/04		

Date: 04/30/04

Page: 1 of 8

REPORT OF LABORATORY ANALYSIS

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Asheville Certification IDs

NC Wastewater 40
NC Drinking Water 37712
SC Environmental 99030
FL NELAP E87648

Charlotte Certification IDs

NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

Lab Project Number: 9265066

Client Project ID: NCDOT 8.2441701 Fayetteville

Lab Sample No: 924126071
Client Sample ID: B-5

Project Sample Number: 9265066-002
Matrix: Soil

Date Collected: 04/16/04 13:22
Date Received: 04/17/04 08:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Wet Chemistry								
Percent Moisture	Method: % Moisture							
Percent Moisture	21.2	%		04/21/04 17:17	TSE			
GC Semivolatiles								
Organochlorine PCBs	Prep/Method: EPA 3545 / EPA 8082							
PCB-1016 (Aroclor 1016)	ND	ug/kg	42.	04/29/04 06:22	RPJ	12674-11-2		
PCB-1221 (Aroclor 1221)	ND	ug/kg	42.	04/29/04 06:22	RPJ	11104-28-2		
PCB-1232 (Aroclor 1232)	ND	ug/kg	42.	04/29/04 06:22	RPJ	11141-16-5		
PCB-1242 (Aroclor 1242)	ND	ug/kg	42.	04/29/04 06:22	RPJ	53469-21-9		
PCB-1248 (Aroclor 1248)	ND	ug/kg	42.	04/29/04 06:22	RPJ	12672-29-6		
PCB-1254 (Aroclor 1254)	ND	ug/kg	42.	04/29/04 06:22	RPJ	11097-69-1		
PCB-1260 (Aroclor 1260)	ND	ug/kg	42.	04/29/04 06:22	RPJ	11096-82-5		
Decachlorobiphenyl (S)	101	%		04/29/04 06:22	RPJ	2051-24-3		
Date Extracted	04/27/04			04/27/04				

Date: 04/30/04

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NC Drinking Water 37712
SC Environmental 99030
FL NELAP E87648

Charlotte Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

Lab Project Number: 9265066

Client Project ID: NCDOT 8.2441701 Fayetteville

Lab Sample No: 924126089
Client Sample ID: B-12

Project Sample Number: 9265066-003
Matrix: Soil

Date Collected: 04/16/04 15:28
Date Received: 04/17/04 08:00

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
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Wet Chemistry

Percent Moisture	Method: % Moisture							
Percent Moisture	14.0	%		04/21/04 17:18	TSE			

GC Semivolatiles

Organochlorine PCBs	Prep/Method: EPA 3545 / EPA 8082							
PCB-1016 (Aroclor 1016)	ND	ug/kg	38.	04/29/04 06:40	RPJ	12674-11-2		
PCB-1221 (Aroclor 1221)	ND	ug/kg	38.	04/29/04 06:40	RPJ	11104-28-2		
PCB-1232 (Aroclor 1232)	ND	ug/kg	38.	04/29/04 06:40	RPJ	11141-16-5		
PCB-1242 (Aroclor 1242)	ND	ug/kg	38.	04/29/04 06:40	RPJ	53469-21-9		
PCB-1248 (Aroclor 1248)	ND	ug/kg	38.	04/29/04 06:40	RPJ	12672-29-6		
PCB-1254 (Aroclor 1254)	ND	ug/kg	38.	04/29/04 06:40	RPJ	11097-69-1		
PCB-1260 (Aroclor 1260)	ND	ug/kg	38.	04/29/04 06:40	RPJ	11096-82-5		
Decachlorobiphenyl (S)	79	%		04/29/04 06:40	RPJ	2051-24-3		
Date Extracted	04/27/04			04/27/04				

Date: 04/30/04

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SC Environmental 99030
FL NELAP E87648



Charlotte Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

PARAMETER FOOTNOTES

Inorganic Wet Chemistry and Metals Analyses were performed at our Pace Asheville Laboratory and Organic testing was performed at our Pace Charlotte laboratory unless otherwise footnoted.

Method 9071B modified to use ASE.

ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL Adjusted Method Detection Limit
(S) Surrogate

Date: 04/30/04

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SC Environmental 99030
FL NELAP E87648

Charlotte Certification IDs

NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

QUALITY CONTROL DATA

Lab Project Number: 9265066

Client Project ID: NCDOT 8.2441701 Fayetteville

QC Batch: 98156
QC Batch Method: EPA 3545
Associated Lab Samples: 924126063

Analysis Method: EPA 8082
Analysis Description: Organochlorine PCBs
924126071 924126089

METHOD BLANK: 924162407
Associated Lab Samples: 924126063 924126071 924126089

Parameter	Units	Blank Result	Reporting Limit	Footnotes
PCB-1016 (Aroclor 1016)	ug/kg	ND	33.	
PCB-1221 (Aroclor 1221)	ug/kg	ND	33.	
PCB-1232 (Aroclor 1232)	ug/kg	ND	33.	
PCB-1242 (Aroclor 1242)	ug/kg	ND	33.	
PCB-1248 (Aroclor 1248)	ug/kg	ND	33.	
PCB-1254 (Aroclor 1254)	ug/kg	ND	33.	
PCB-1260 (Aroclor 1260)	ug/kg	ND	33.	
Decachlorobiphenyl (S)	%	131		

LABORATORY CONTROL SAMPLE: 924162415

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
PCB-1016 (Aroclor 1016)	ug/kg	166.70	179.3	108	
PCB-1260 (Aroclor 1260)	ug/kg	166.70	158.4	95	
Decachlorobiphenyl (S)				131	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924162423 924162431

Parameter	Units	924119258 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
PCB-1016 (Aroclor 1016)	ug/kg	0	246.10	246.3	215.3	100	88	13	
PCB-1260 (Aroclor 1260)	ug/kg	0	246.10	261.7	231.3	106	94	12	
Decachlorobiphenyl (S)						140	121		

Date: 04/30/04

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REPORT OF LABORATORY ANALYSIS

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NC Drinking Water 37712
SC Environmental 99030
FL NELAP E87648



Charlotte Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

QUALITY CONTROL DATA

Lab Project Number: 9265066

Client Project ID: NCDOT 8.2441701 Fayetteville

SAMPLE DUPLICATE: 924162449

Parameter	Units	924119266	DUP	RPD	Footnotes
		Result	Result		
PCB-1016 (Aroclor 1016)	ug/kg	ND	ND	NC	
PCB-1221 (Aroclor 1221)	ug/kg	ND	ND	NC	
PCB-1232 (Aroclor 1232)	ug/kg	ND	ND	NC	
PCB-1242 (Aroclor 1242)	ug/kg	ND	ND	NC	
PCB-1248 (Aroclor 1248)	ug/kg	ND	ND	NC	
PCB-1254 (Aroclor 1254)	ug/kg	ND	ND	NC	
PCB-1260 (Aroclor 1260)	ug/kg	ND	ND	NC	
Decachlorobiphenyl (S)	%	108	231		1

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QUALITY CONTROL DATA

Lab Project Number: 9265066

Client Project ID: NCDOT 8.2441701 Fayetteville

QC Batch: 97699

Analysis Method: % Moisture

QC Batch Method:

Analysis Description: Percent Moisture

Associated Lab Samples:

924126063

924126071

924126089

SAMPLE DUPLICATE: 924138514

Parameter	Units	924129794	DUP	RPD	Footnotes
		Result	Result		
Percent Moisture	%	21.60	21.40	1	

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QUALITY CONTROL DATA PARAMETER FOOTNOTES

Consistent with EPA guidelines, unrounded concentrations are displayed and have been used to calculate % Rec and RPD values.

LCS(D) Laboratory Control Sample (Duplicate)
MS(D) Matrix Spike (Duplicate)
DUP Sample Duplicate
ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
MDL Adjusted Method Detection Limit
RPD Relative Percent Difference
(S) Surrogate
[1] The surrogate recovery was above the QC recovery limit. The sample was not re-extracted since no target analytes were detected in the sample.

Date: 04/30/04

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